

EXHIBIT O

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

ORACLE AMERICA, INC.

Plaintiff,

v.

GOOGLE INC.

Defendant.

Case No. CV 10-03561 WHA

**PLAINTIFF'S RESPONSES AND
OBJECTIONS TO DEFENDANT
GOOGLE INC.'S FIRST SET OF
INTERROGATORIES TO
PLAINTIFF ORACLE AMERICA,
INC. (NOS. 1-10)**

Dept.: Courtroom 9, 19th Floor
Judge: Honorable William H. Alsup

1 damages corresponding to Google's willful infringement—is in Google's possession, timely
2 production of information and documents relating to damages by Google will be necessary in
3 order for Oracle's experts to be able to provide detailed quantifications of Oracle's damages in
4 their initial reports.

5 **INTERROGATORY NO. 2:**

6 State in detail Oracle's factual bases for its claim of direct copyright infringement,
7 specifically including a comparison of each element of Java software, including without
8 limitation any class libraries, API packages, method names, class names, definitions,
9 organizational elements, parameters, structural elements, and documentation, to the
10 corresponding Android element, as Oracle did in Exhibit J to its Amended Complaint.

11 **RESPONSE TO INTERROGATORY NO. 2:**

12 Oracle owns many copyrights in the code, documentation, specifications, libraries, and
13 other materials that comprise the Java platform. As new versions of the Java platform were
14 developed and the materials revised, the copyrights were registered with the United States
15 Copyright Office, including TX0004416302; TX0004326014; TX0004616088; TX0005271787;
16 TX0005316757; TX0005316758; TX0005359984; TX0005359985; TX0005359986;
17 TX0005359987; TX0005392885; TX0006066538; TX0006143306; and TX0006196514. Google
18 has infringed Oracle's copyrights.

19 Android Application Programmer Interface (API) package specifications (whether or not
20 from the Apache Harmony project) that correspond to Oracle's Java API specifications are
21 unauthorized derivative work, and Google's unauthorized copying and distribution of them is
22 copyright infringement. A comparison of Android's API package specifications (available at
23 <http://developer.android.com/reference/packages.html>) with Oracle's copyrighted Java API
24 package specifications (for example, available at
25 <http://download.oracle.com/javase/1.5.0/docs/api/>,
26 <http://download.oracle.com/javase/1.4.2/docs/api/>, and
27
28

1 <http://download.oracle.com/javase/1.3/docs/api/>)⁸ demonstrates that the following Android
2 package specifications are derived from or substantially similar to Oracle's copyrighted Java API
3 package specifications:

- 4 1. java.awt.font
- 5 2. java.beans
- 6 3. java.io
- 7 4. java.lang
- 8 5. java.lang.annotation
- 9 6. java.lang.ref
- 10 7. java.lang.reflect
- 11 8. java.math
- 12 9. java.net
- 13 10. java.nio
- 14 11. java.nio.channels
- 15 12. java.nio.channels.spi
- 16 13. java.nio.charset
- 17 14. java.nio.charset.spi
- 18 15. java.security
- 19 16. java.security.acl
- 20 17. java.security.cert
- 21 18. java.security.interfaces
- 22 19. java.security.spec
- 23 20. java.sql
- 24 21. java.text
- 25 22. java.util

26 ⁸ Oracle's copyright infringement claim applies to all versions of Oracle's Java API specifications and reference
27 implementations from which Android derives, which include J2SE 1.2, J2SE 1.3, J2SE 1.4, and J2SE 5.0.

- 1 23. java.util.concurrent
- 2 24. java.util.concurrent.atomic
- 3 25. java.util.concurrent.locks
- 4 26. java.util.jar
- 5 27. java.util.logging
- 6 28. java.util.prefs
- 7 29. java.util.regex
- 8 30. java.util.zip
- 9 31. javax.crypto
- 10 32. javax.crypto.interfaces
- 11 33. javax.crypto.spec
- 12 34. javax.net
- 13 35. javax.net.ssl
- 14 36. javax.security.auth
- 15 37. javax.security.auth.callback
- 16 38. javax.security.auth.login
- 17 39. javax.security.auth.x500
- 18 40. javax.security.cert
- 19 41. javax.sql
- 20 42. javax.xml
- 21 43. javax.xml.datatype
- 22 44. javax.xml.namespace
- 23 45. javax.xml.parsers
- 24 46. javax.xml.transform
- 25 47. javax.xml.transform.dom
- 26 48. javax.xml.transform.sax
- 27 49. javax.xml.transform.stream
- 28 50. javax.xml.validation

1 51. javax.xml.xpath

2 Some Android package API specifications are substantially similar to selected portions of some
 3 of the Oracle Java API package specifications (*e.g.*, java.awt.font, java.beans) while other
 4 Android package API specifications are substantially similar to complete portions of other Oracle
 5 Java API package specifications (*e.g.*, java.io, java.lang, java.net, java.nio, java.security, java.sql,
 6 java.text). Exhibits A-E are illustrative examples.⁹

7 The Android source and object code (whether or not from the Apache Harmony project)
 8 that purports to implement Oracle's Java API specifications is unauthorized derivative work, and
 9 Google's unauthorized copying and distribution of it is copyright infringement. *See, e.g.*, "What
 10 is Android?" (available at <http://developer.android.com/guide/basics/what-is-android.html>
 11 ("Android includes a set of core libraries that provides most of the functionality available in the
 12 core libraries of the Java programming language.")); Package Index (available at
 13 <http://developer.android.com/reference/packages.html>), including those API packages listed
 14 above, and subsidiary webpages; and source code and documentation files available in:¹⁰

- 15 • libcore\security\src\main\java\java\security;
- 16 • libcore\security\src\main\java\javax\security\cert;
- 17 • libcore\security\src\main\java\org\apache\harmony\security;
- 18 • libcore\math\src\main\java\java\math;
- 19 • libcore\math\src\main\java\org\apache\harmony\math;
- 20 • libcore\luni\src\main\java\java;
- 21 • libcore\luni\src\main\java\org\apache\harmony\luni;
- 22 • libcore\luni-kernel\src\main\java\java\lang;

23 ⁹ The illustrative examples are taken from <http://download.oracle.com/javase/1.5.0/docs/api/> and
 24 <http://developer.android.com/reference/packages.html>.

25 ¹⁰ It appears that Google has recently modified the source code currently available through
 26 <http://android.git.kernel.org>. Such changes are subject to the discovery Oracle has propounded on Google. In any
 27 event, the cited source code examples are taken from <http://android.git.kernel.org/>. The citations are shortened and
 28 mirror the file paths shown in <http://android.git.kernel.org/>. For example, "dalvik\vm\native\InternalNative.c" maps
 to "[platform\dalvik.git] / vm / native / InternalNative.c" (accessible at
<http://android.git.kernel.org/?p=platform/dalvik.git;a=blob;f=vm/native/InternalNative.c>) before modification by
 Google.

- libcore\luni-kernel\src\main\java\org\apache\harmony\kernel;
- libcore\luni-kernel\src\main\java\org\apache\harmony\lang;
- libcore\nio\src\main\java\java.

Google has created and distributed infringing works written in native code, in addition to Java code, that derive from Oracle's copyrighted works. For example, Google makes and distributes dalvik\vm\native\java_lang_Class.c, which is based on Oracle's java.lang.Class specification.

Other examples include:

- dalvik\vm\native\java_lang_Object.c
- dalvik\vm\native\java_lang_reflect_AccessibleObject.c;
- dalvik\vm\native\java_lang_reflect_Array.c;
- dalvik\vm\native\java_lang_reflect_Constructor.c;
- dalvik\vm\native\java_lang_reflect_Field.c;
- dalvik\vm\native\java_lang_reflect_Method.c;
- dalvik\vm\native\java_lang_reflect_Proxy.c;
- dalvik\vm\native\java_lang_Runtime.c;
- dalvik\vm\native\java_lang_String.c;
- dalvik\vm\native\java_lang_System.c;
- dalvik\vm\native\java_lang_Throwable.c;
- dalvik\vm\native\java_lang_VMClassLoader.c;
- dalvik\vm\native\java_lang_VMThread.c;
- dalvik\vm\native\java_security_AccessController.c;
- dalvik\vm\native\java_util_concurrent_atomic_AtomicLong.c; and
- dalvik\vm\native\sun_misc_Unsafe.c.

See also, e.g., source code files in libcore\luni\src\main\native; libcore\luni-kernel\src\main\native.

Google's Android videos directly reference inclusion of Java libraries in Android, *e.g.*:

- Google Presentation, entitled "Android: Securing a Mobile Platform from the Ground Up," presented by Rich Cannings (Google's Android Team) at the Usenix 18th

Security Symposium (Aug. 12, 2010), available at

<http://www.usenix.org/events/sec09/tech/>.

- Google I/O 2010 Video, entitled “A JIT Compiler for Android’s Dalvik VM,” presented by Ben Cheng and Bill Buzbee (Google’s Android Team), available at <http://developer.android.com/videos/index.html#v=Ls0tM-c4Vfo>.
- Google I/O 2008 Video, entitled “Dalvik Virtual Machine Internals,” presented by Dan Bornstein (Google Android Project), available at <http://developer.android.com/videos/index.html#v=ptjedOZEXPM>.

Moreover, Google admits that Android incorporates a subset of Apache Harmony, which it asserts is “an implementation of Sun’s Java.” (*See, e.g.*, Google’s Amended Counterclaims ¶¶ 6-7, 13.)

Google distributes by way of Android and Android-related websites source and object code derived from or substantially similar to Oracle’s source code or to decompiled Oracle object code, including:

- `/dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/AclEntryImpl.java`
- `/dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/AclImpl.java`
- `/dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/GroupImpl.java`
- `/dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/OwnerImpl.java`
- `/dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/PermissionImpl.java`
- `/dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/PrincipalImpl.java`
- `/dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/cert/PolicyNodeImpl.java`

- /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/AclEnumerator.java (which was obtained by decompiling Oracle's /sun/security/acl/AclEnumerator.class)
- /dalvik/libcore/luni/src/main/java/java/util/TimSort.java contains code copied from Oracle's java/util/Arrays.java
- /dalvik/libcore/luni/src/main/java/java/util/ComparableTimSort.java contains code copied from Oracle's java/util/Arrays.java
- /dalvik/libcore/security/src/test/java/org/apache/harmony/security/tests/java/security/CodeSourceTest.java contains comments copied from Oracle's /java/security/CodeSource.java
- /dalvik/libcore/security/src/test/java/tests/security/cert/CollectionCertStoreParametersTest.java contains comments copied from Oracle's /java/security/cert/CollectionCertStoreParameters.java

Additional supporting evidence of Google's copyright infringement can be found at, *e.g.*, GOOGLE-00248372; GOOGLE-00296156-75; GOOGLE-00296453-60; GOOGLE-00296959-61; GOOGLE-00296500-03; GOOGLE-00296507; GOOGLE-00297265; GOOGLE-00297033-38, GOOGLE-00297252-57, GOOGLE-00297361-65 and similar questionnaires signed by other developers; GOOGLE-00296203-07; GOOGLE-00296498-99; GOOGLE-00296523-24; GOOGLE-00296525-26; GOOGLE-00297075-76.

Discovery is ongoing, and Oracle has not yet completed its investigation of the documents and facts relevant to the claims and defenses asserted in this action. Accordingly, Oracle's responses are based on the information reasonably available at this time and Oracle will supplement this response as appropriate under the Federal Rules of Civil Procedure.

INTERROGATORY NO. 3:

State in detail Oracle's factual bases for each element of indirect copyright infringement, specifically including an identification of any direct infringement and a description of the acts of the alleged indirect infringer that contribute to or are inducing that direct infringement.

1 information regarding the nature of the relationship with these and any of the other inventors of
2 the patents-in-suit.

3 Discovery is ongoing, and Oracle has not yet completed its investigation of the documents
4 and facts relevant to the claims and defenses asserted in this action. Accordingly, Oracle's
5 responses are based on the information reasonably available at this time and Oracle will
6 supplement this response as appropriate under the Federal Rules of Civil Procedure.

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8 Dated: January 6, 2011

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